

REMARKS

The Office Action was mailed in the present case on May 5, 2003, making a response due by August 5, 2003. This Response is being filed with a Petition For Extension of Time Within the First Month and the required extension fee. No additional fee is thought to be due at this time. If any additional fee is due for the continued prosecution of this application, please charge the same to Applicant's Deposit Account No. 50-2555 (Whitaker, Chalk, Swindle & Sawyer, LLP).

The Examiner continues to reject Applicant's remaining claims under 35 U.S.C. §112 as being indefinite. Specifically, the Examiner argues that since Applicant's claims are indefinite because the installation step in the gasket receiving groove is never recited in the body of the claims. If Applicant properly understands the Examiner's argument on this point, the amended language in independent Claims 4 and 5 is intended to address this issue.

To briefly restate the point of Applicant's invention, Applicant provides a method for arriving at a Rieber style pre-located gasket, also referred to as an "integral sealing gasket system" specifically for polyethylene pipe. In the Rieber system commonly found in the industry, a sealing gasket is pre-located within the bell end of a plastic pipe during manufacture by heating the plastic pipe end and forcing the softened pipe end over a steel mandrel which has a sealing gasket carried thereon. The presence of the sealing gasket on the exterior of the mandrel in a sense forms the gasket receiving groove in the bell end of the pipe as the softened pipe end is cooled and retracts about the gasket and mandrel. Once the pipe end has cooled, the mandrel is withdrawn, leaving the gasket in place within the internal gasket receiving groove.

The provision of a prestressed and anchored elastomeric gasket during the belling process at the pipe factory thus provides an improved bell or socket end for a pipe joint with a sealing gasket which will not twist or flip or otherwise allow impurities to enter the sealing zones of the joint. However, as has been explained, the Rieber system required that the female preformed pipe end be heated and the pipe end physically forced over the mandrel which held the gasket. Thus, it was necessary to force the pipe end over the gasket and mandrel and to move the pipe end longitudinally over the gasket so that the gasket was seated. This could only be accomplished by heating the thermoplastic material to allow its expansion, followed by cooling to return the material to its natural, relaxed state. This type process works well for such pipe materials as PVC but does not work well for polyethylene. In the case of polyethylene, using the traditional Rieber process resulted in a pipe shape that was not stable.

Applicant's presently claimed invention uses a different technique of extruding polyethylene strips which are wound about the steel forming mandrel and pre-located sealing gasket. The thus formed bell connection is typically electro-welded onto a generally cylindrical length of thermoplastic pipe. The result is a very stable pipe shape which is not affected by subsequent heat and which, at the same time, allows a pipe joint to be easily made up by simply inserting the male spigot end into the previously formed female bell end connection.

The reason that Applicant has not previously included a separate step of "installing the gasket within the gasket receiving groove" is that the groove isn't initially present in the bell pipe end and there is no separate installation step. The bell pipe end is being formed, in this case by spirally winding strips of polyethylene about a rotating mandrel and over the gasket, with the presence of the gasket providing the internal groove profile in the ultimately formed belled pipe end. Applicant has attempted to amend Claims 4 and 5 to include explicit language which more concretely describes how the gasket comes to be located in an internal groove in the belled pipe end. If this language is still not clear, Applicant invites the Examiner to call the undersigned so that the problem in regard to the definiteness of the claim language can be discussed.

The Examiner also continued the substantive rejection of Applicant's remaining claims under 35 U.S.C. Section 103 (a) as being obvious over Sznoppek (4,329,193) in view of Sundqvist et al. (5,411,619), further adding the reference to Corbett, Jr. (5, 988, 695) for a teaching of the use of polyethylene gaskets. Sznoppek is cited to show the steps of installing an elastomeric gasket on a mandrel and extruding a composite material including a thermosetting plastic. Since the composite material of Sznoppek is not a thermoplastic material, the Examiner then cites Sundqvist to show the extrusion of a thermoplastic profile.

Applicant has amended each of the remaining claims in the case in an attempt to better define the particular problem being addressed and to more explicitly point out the novel features of the claimed invention. Applicant has specifically amended the remaining independent claims to include the steps of:

providing a rotatably driven mandrel having a substantially cylindrical end section corresponding to the internal diameter of a bell connection to be formed, the mandrel having an outer extent and an inner extent, the mandrel having a locating area for an elastomeric gasket on an external surface thereof, the locating area forming a region of decreased external diameter on the substantially cylindrical end

end does not matter
section of the mandrel;

end does not matter
positioning an elastomeric gasket on the external surface of the mandrel within the region of decreased external diameter at the locating area thereof, the locating area being between the inner and outer extents of the mandrel;

forming a bell connection about the mandrel and suitably located gasket by extruding a heated melt profile made of polyethylene onto the mandrel beginning adjacent the inner extent of the mandrel and spirally winding the melt profile around the cylindrical end section of the mandrel and around the gasket such that adjacent windings of the melt profile make contact, passage of the spirally wound melt profile around the mandrel cylindrical inner extent, the region of decreased external diameter and mandrel cylindrical outer extent serving to form the gasket receiving groove into a desired shape;

cooling the bell connection thus formed to thereby maintain the desired shape of the gasket receiving groove;

removing the bell connection and gasket from the mandrel;

whereby a pre-stressed and pre-located integral gasket is provided within the bell connection which is securely retained within the gasket receiving groove, the bell connection being integrally formed about the gasket during manufacture [Claim 4].

The amended claim language is intended to emphasize the manner in which the internal gasket receiving groove is formed in the belled pipe end. The language is also specifically intended to distinguish the cited combination of references.

never recited in Baby Justice
Sznoppek shows the use of a rubber sleeve in interconnecting sections of essentially rigid asbestos-cement pipe (Col. 1, lines 12-13). [He is not concerned with polyethylene plastic pipe joining systems of the type being dealt with in Applicant's invention.] In Sznoppek, the thermoplastic material is provided in the form of an elastomeric sleeve 12 which is surrounded by a fiber glass plastic body 10. The elastomeric sleeve 12 is cut from a continuous extrusion of EPDM rubber (Col. 5, lines 44-46). The cut section of extrusion is spliced to an annular configuration (Col. 5, line 48). The spliced liner is then installed on a rotatable mold (Col. 6, lines 23-24). A polyester body

is then built up upon the elastomeric liner (see Col. 7, lines 19-25). Sznopek is not dealing with Applicant's problem of adapting a Rieber type sealing gasket to the bell end connection of a polyethylene pipe. As such, one skilled in the art would not find the answer to Applicant's problem in the teaching of Sznopek.

The Sundqvist reference does deal with spirally wrapping thermoplastic materials, but the pipe joint which is formed does not have an integral gasket which is provided within the socket end of a polyethylene pipe which is securely retained within a receiving groove which is integrally formed about the gasket during the manufacturing step, as claimed by Applicant. Once again, the teaching of Sundqvist is not directed toward an alternative to the Rieber pre-formed and pre-stressed sealing gasket system. The melt thermoplast in Sundqvist is extruded and spirally wrapped in overlapping layers around the mandrel and the pipe end (Abstract of Sundqvist). Applicant is not wrapping a thermoplast melt about a pipe end. Applicant is, more precisely stated, forming a pipe end.

Applicant's amended claim language further distinguishes Sundqvist in that Applicant's mandrel is basically a cylindrical surface which is interrupted by a "region of decreased external diameter" which receives the sealing gasket. With reference to Applicant's Figure 1, note the cylindrical surfaces 35 and 47 interrupted by the gasket locating area. It is this profile which allows the gasket receiving groove to be formed integrally as the pipe belled end is being formed. Referring to Sundqvist, he clearly has a "slightly conical mandrel" (Abstract and number 2 of the first drawing). Even if Sundqvist were combined with Sznopek, one would not form an internal gasket receiving groove as the pipe belled end was simultaneously being formed, as in Applicant's amended claims. The interior of the pipe end formed with the Sundqvist mandrel would be conically shaped and gradually increasing in internal diameter in the direction of the pipe end.

Finally, while Corbett, Jr. may mention that a variety of plastic pipe materials are used in plastic pipe joining systems, the specific teaching of the patent is the use of an embedded ring which helps to retain the gasket on the forming mandrel used in a traditional Rieber type process. Corbett, Jr. nowhere teaches a solution to the problem of using polyethylene in the Rieber process or of accommodating its memory characteristics during the manufacture. Thus, not even the combination of Corbett, Jr. would arrive at Applicant's presently claimed invention.

Based upon the above remarks, Claims 4, 5 and 7-11 are thought to be allowable over the art of record and an early notification of the same would be appreciated.

Respectfully submitted,

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